

REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-14 and 17-53 are presently active in this case, Claims 1, 17, 22, 30-32, 42, 47, 49 and 51 amended and Claims 15 and 16 canceled and Claims 52-53 added by way of the present amendment.

In the outstanding Official Action, Claims 22 and 29 were objected to for informalities; Claims 42 and 49 were rejected under 35 U.S.C. § 112, second paragraph; Claims 1-6, 10-14, 16, 32, 35-36, 40-41, 43-45 and 48 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,947,053 to Burnham et al.; Claims 4-9, 15, 17-31, 33-34, 37-39, 42, 46, and 50 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Burnham et al. and Claims 47, 49 and 51 were indicated as being allowable if rewritten to overcome any claim objections and to be in independent form including the base claim and any intervening claims.

Applicants first wish to thank Examiner Geisel for the indication of allowable subject matter. Applicants note that Claims 47, 49 and 51 have now been amended as suggested by the outstanding Official Action. Therefore these claims are in condition for allowance.

In addition, Applicants wish to thank Examiner Geisel for the November 8, 2005 personal interview at which time the outstanding issues in this case were discussed. During the interview, Applicants presented amendments and arguments substantially as indicated in this response. While no agreement was reached, the Examiner indicated that the amendments and arguments presented appear to overcome the rejection based on Burnham et al.

Turning now to the merits, in order to expedite issuance of a patent in this case, Applicants have amended independent Claims 1, 17, and 32 to clarify the patentable features of the present invention over the cited references. Specifically, Applicants' Claim 1, as

amended recites a method of monitoring erosion of a system component in a plasma processing system, the method including exposing a system component having a gas emitter to a plasma process, the gas emitter including a discrete cavity having a predetermined shape and embedded within the system component to contain a sensor gas therein. Also recited is monitoring the plasma process system for release of the sensor gas from the gas emitter during the process to determine erosion of the system component. Thus, Claim 1 has been amended to clarify that the gas emitter is a discrete cavity having a predetermined shape and is embedded within the system component to contain the sensor gas. Independent Claims 17 and 32 have been similarly amended to recite the gas emitter in a plasma processing system and system component claim format.

In contrast, the cited reference to Burnham et al. discloses a wear-through detector for multilayered parts used within an ion implantation system. As seen in Figure 1a, the ion implantation system includes an ion beam aperture 5 having end portions 5a coated with a graphite coating to prevent the base material 5b of the aperture from contaminating the process chamber. In order to determine when the graphite coating has been depleted, the Burnham et al. reference includes an indicator layer 33 shown in Figures 3c and 3e, the monitoring layer being interposed between the graphite layer and the base material of the aperture. When the graphite layer 31 is worn through by the ion beam, for example, the ion beam becomes incident on the indicator layer 33, which releases a constituent for indicating that the graphite layer has been removed and maintenance of the chamber should be performed in order to replace the aperture piece. As shown in Burnham et al., the indicating layer 33 is a coating that is provided on the underlying component, and provides a base for further layering the protective graphite material on the indicator layer.

As discussed in the November 8th personal interview, even where the indicator layer is implemented as a rigid low permeability foam, this layer at best includes extremely small

irregularly shaped air bubbles therein, which may contain a noble gas.¹ However, Burnham et al. does not disclose a gas emitter comprising a discrete cavity having a predetermined shape and embedded within the system component to contain a sensor gas therein.

Applicants note that this structure allows the gas contained within the gas emitter to be released from the gas emitter in large volume as soon as the system component erodes down to the gas emitter. It is by this structure that the gas emitter provides a clear warning of the erosion status of the system component. Burnham et al. does not provide this function. Thus, Applicants' independent Claims 1, 17 and 32 patentably define over the cited references.

As Claims 1, 17, and 32 patentably define over the cited references, the remaining dependent Claims 2-14, 18-31, and 33-51 also patentably define over the cited references. Further, Applicants note that Claims 52 and 53 have been added to vary the scope of protection provided by the claims in the present application. Specifically these claims each recite a system component having a first gas emitter at a first spatial location along an area of the system component, and a second gas emitter at a second spatial location along an area of the system component. As discussed in the November 8, 2005 interview, this structure allows monitoring the plasma processing system for a first sensor gas from the first gas emitter and a second sensor gas from the second gas emitter during the plasma process in order to determine erosion of the system component at the first and second spatial locations (which is recited in Claim 52). In contrast, Burnham et al. discloses only layered indicator materials on different components. Thus, Claims 52 and 52 provide an additional basis for patentability over Burnham.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application and the present application is believed to be in

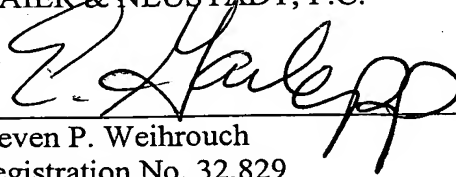
¹ See Burnham et al. at column 7, lines 35-45.

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condition for formal allowance. An early and favorable action is therefore respectfully requested.

Respectfully submitted,

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